

SPECIFICATIONS INDEX

GOVERNMENT OF THE VIRGIN ISLANDS, DEPARTMENT OF HEALTH

ELDRA SHULTERBRANDT ANNEX FACILITY

GRANT NO. D12AP00350 (VI-CIP-2012-4)

St. Thomas, U. S. Virgin Islands

DIVISION 2 – SITE CONSTRUCTION

SECTION 02070 – SELECTIVE DEMOLITION
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PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 – Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of a building.
 - 2. Patching and repairs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Summary of Work" for use of the building and phasing requirements.
 - 2. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.
 - 3. Division 1 Section "Contract Closeout" for record document requirements.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvages, or to remain the Owner's property.
- B. Remove and Salvage: Items indicated to be removed and salvages remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Proposed dust-control measures.

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- C. Proposed noise-control measures.
- D. Schedule of selective demolition activities indicating the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
 - 2. Interruption of utility services.
 - 3. Coordination of shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 7. Locations of temporary partitions and means of egress.
- E. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- F. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."
 - 1. Identify and accurately locate capped utilities and other subsurface structural, electrical or mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Pre-demolition Conference: Conduct conference at Project site to comply with pre-installation conference requirements of Division 1 Section "Project Meetings."

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner assumes no responsibility for actual condition of buildings to be selectively demolished.
 - 1. Conditions exist at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Architect and the Owner.
 - 1. Asbestos will be removed by Owner before start of Work.
- D. Storage or sales of removed items or materials on-site will not be permitted.

1.8 SCHEDULING

- A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

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1.9 WARRANTY

- A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and materials so as not to void existing warranties.

PART 2 – PRODUCTS (NOT APPLICABLE)

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that existing materials.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by the Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
 - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving building to be selectively demolished.
 - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies.
 - 3. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.

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4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.
- C. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utility services. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Conduct demolition operations to prevent injury to people and facilities that remain. Ensure safe passage of people around selective demolition areas.
 1. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.
 2. Protect existing site improvements, appurtenances, and landscaping to remain.

3.4 POLLUTION CONTROLS

- A. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 1. Remove debris from elevated portions of buildings by chute, hoist, or other device that will convey debris to grade level.

3.5 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Maintain adequate ventilation when using cutting torches.
 5. Remove decayed, vermin-infested, or otherwise dangerous, damaged or unsuitable materials and promptly dispose of off-site.
 6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 7. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors or framing.

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8. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 9. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.
- C. Remove no resilient floor coverings and adhesive according to recommendations of the Resilient Floor Covering Institute's (RFCI) "Recommended Work Practices for the Removal of Resilient Floor Coverings" and Addendum. roofing. Provide temporary waterproof seal between new and existing roofing at the end of each day.
1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.
- D. Remove no more existing roofing than be covered in one day by new roofing.
- E. Remove air-conditioning equipment without releasing refrigerants.

3.6 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Patching is specified in Division 1 Section "Cutting and Patching."
- C. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturer's printed recommendations.
- D. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- E. Patch and repair floor and wall surfaces in the new space where demolished walls or partitions extend one finished area into another. Provide a flush and even surface of uniform color and appearance.
1. Closely match texture and finish of existing adjacent surface.
 2. Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 3. Where patching smooth painted surfaces, extend final paint coat over entire unbroken surface containing the patch after the surface has received primer and second coat.
 4. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 5. Inspect and test patched areas to demonstrate integrity of the installation, where feasible.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

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- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
- C. Burning: Do not burn demolished materials.

3.8 CLEANING

- A. Sweep the roof clean on completion of selective demolition operation.
- B. Change filters on air-handling equipment on completion of selective demolition operations.

END OF SECTION

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PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Without limiting the generality thereof, the work under this Section includes the furnishing of all labor, equipment, supplies and materials and the performing of all operations in connection with but not necessarily limited to the following items:
1. Rock removal as required, for excavation to the lines and grades indicated on the Drawings.
 2. Excavation and disposal of unsuitable or excess materials. Excavation of all traces of loam within the excavation and fill limits. Removal of all excess materials.
 3. Excavation, fill, and compaction as indicated or required for the grading of the new paved drives, walks and parking areas.
 4. Base and sub-base course material under pavements, slabs and footings, including compaction.
 5. Dewatering and control of water for all construction operations.
 6. Protection of existing buildings, pavements and utilities to remain.
 7. Dust and environmental controls.
 8. Trench and pit excavation, bedding, and backfill for all utilities, including compaction.
 9. Sheet piling, shoring and bracing of structural and trench excavations.

1.02 JOB CONDITIONS

- A. Utilities
1. The locations of known buried water lines, sewer lines, telephone cables, storm drains, culverts, gas mains, electric conduits, and other and other utilities are shown on the Drawings. No guarantee is made as to the correctness of the locations shown and to the completeness of the information given.
 2. Discontinue excavation by machinery when the excavation approaches pipes, conduits, or other underground structures of which the approximate locations are known. Use manual excavation methods to locate the obstructions.
- B. Existing Structures:
1. Perform excavation in such a manner that will prevent any possibility of undermining and disturbing the foundations of any existing structures and any work previously completed under this Contract.
 2. Where existing buildings and other structures are in close proximity to the proposed construction, exercise extreme caution and utilize sheet piling, bracing, and whatever other precautionary measures that may be required.
- B. Repairing Damage: Repair, or have repaired, all damage to existing utilities, structures, lawns, other public and private property which results from construction operations, at no additional expense to the Owner, to the complete satisfaction of the Engineer, the utility company and the property owner.
- D. Do not leave any trenches open overnight.
- E. Trench Bracing: Properly support all trenches in strict accordance with all pertinent rules and regulations. Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements

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of every kind, whether on public or private property, will be fully protected from damage. In the event of damage to such improvements, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 FILL MATERIAL

- A. Approval Required: All fill material shall be subject to the approval of the Engineer.
- B. Notification: For approval of fill material, notify the Engineer at least four working days in advance of intention to import material, designate the proposed borrow area, and permit the Engineer to sample as necessary from the borrow area for the purpose of making acceptance tests to prove the quality of the material.

2.02 ON-SITE FILL MATERIAL

- A. In general all on-site fill material shall be soil or soil-rock mixture, which is free from organic matter and other deleterious substance. It shall contain no rocks or lumps over six inches in greatest dimension, and not more than 15% of the rocks or lumps shall be larger than 2 1/2 inches in greatest dimension. No on-site fill shall be placed without the approval of the Engineer.
- B. The Contractor shall not have any right of property in any suitable materials taken from any excavation. Do not remove any such materials from the construction site without the approval of the Engineer. This provision shall in no way relieve the Contractor of his obligations to remove and dispose of any material determined by the Engineer to be unsuitable for backfilling.

2.03 BORROW AND BEDDING MATERIAL

- A. Work Included: Provide, place and compact borrow and bedding material in authorized excavation(s) below normal depth and in other location(s) as shown on the Drawings and/or as requested by the Engineer and/or as specified herein.
- B. Gravel Borrow:
 - 1. Well graded granular material suitable for placement in authorized excavations below the bottom of the bedding layer to replace deficient excavated material, for service road construction, and other designated uses.
 - 2. Conform to requirements of ASTM D-1241-68, Type 1, Gradation B or C.
- C. Screened Gravel or Crushed Stone (Bedding Material):
 - 1. Screened gravel or crushed stone shall be well graded in size from 1/4 inch to 3/4 inch.
 - 2. Clean, hard, and durable particles or fragments.
 - 3. Sieve Analysis:

Sieve	% Passing by
<u>Designation</u>	<u>Weight</u>
1"	100
3/4"	90-100
3/8"	20-55
No. 4	0-10
No. 8	0-5

- D. Sand:

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1. Clean, hard and durable particles or fragments.
2. Sieve Analysis:

Sieve Designation	% Passing by Weight
3/8"	100
No. 4	95-100
No. 16	50-85
No. 50	10-30
No. 100	2-10

E. Common Borrow:

1. Common borrow shall consist of earth suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat and other unsuitable material.
2. The moisture content shall be sufficient to provide the required compaction and stable embankment. In no case shall the moisture content exceed 4 percent above optimum.
3. The optimum moisture content shall be determined in accordance with AASHTO T 180, Method C or D.

2.04 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation, shall be provided as selected by the Contractor subject to the approval of the Engineer.
- B. Embankment Material: Obtain prior approval and instructions from the Engineer prior to undertaking the excavation for pipe placement of any fill material that has been in an embankment less than one year.

2.05 UNSUITABLE MATERIAL

- A. If, in the opinion of the Engineer, the material encountered above the indicated grade shown on the Drawings for excavation is unsuitable material, remove the material to the widths and depths as directed by the Engineer. Replace this material as specified in the "Backfilling, Compaction, Control and Testing" Section of this Division.
- B. If, in the opinion of the Engineer, the material encountered at or below the indicated grade shown on the Drawings for excavation is unsuitable material, remove the material to the full width of the trench and to a minimum depth of 12-inches below the pipe. Replace this material with thoroughly compacted, suitably screened gravel or crushed stone bedding material.
- C. All excavated materials designated by the Engineer as unsuitable shall become the property of the Contractor and disposed of at locations acceptable to or designated by the Owner, at no additional cost to the Owner.

PART 3 - EXECUTION

3.01 EXCAVATION - EARTH

- A. General:
 1. Unless otherwise specifically directed or permitted by the Engineer, begin excavation at the low end of sewer lines and proceed upgrade.
 2. Perform excavation for sewers in a logical sequence.

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- B. Amount of Excavation:
1. Trench Width: As shown on the Drawings.
 2. Trench Depth: As shown on the Drawings.
 3. Open Excavation:
 - a. The extent of open excavation shall be controlled by prevailing conditions.
 - b. Open excavation shall, at all times, be confined to the limits prescribed by the Engineer.
 4. Unauthorized Excavation:
 - a. Backfill to the specified grade any excavation beyond the limits stated above and as shown on the Drawings (unless specifically ordered by the Engineer) with thoroughly compacted crushed stone or screened gravel.
 - b. Backfilling unauthorized excavation shall be at no additional cost to the Owner.
- C. Shoring and Bracing: As the excavation progresses, install such shoring and bracing necessary to prevent caving and sliding and to meet the requirements of the State and OSHA safety standards.

3.02 EXCAVATION - LEDGE

A. Work Included:

1. Excavation work in ledge includes the removal of ledge and rock required for the installation of pipes and/or structures.
2. "Ledge" and "rock" includes any natural compound, natural mixture, and chemical element in excess of two yards in volume and required to be excavated that, in the opinion of the Engineer, can be removed from its existing position and state only by blasting, drilling and blasting, wedging, drilling and wedging, wedging and breaking with power hand tools, or by extending the use of an approved excavating machine beyond normal and design wear and tear.

No boulder, ledge, slab, or other single piece of excavated material less than one cubic yard in total volume shall be considered to be rock unless, in the opinion of the Engineer, it must be removed from its existing position by one of the methods mentioned above.

3. All trench excavation shall be classed as earth or ledge.

B. Related Work Specified Elsewhere (When Applicable):

1. The use of explosives is specified in the Supplementary Conditions of the Contract.
2. Traffic regulation, when applicable, is specified in Division 1.
3. When applicable, clearing, removal and replacement of paving, trench excavation – earth, backfilling, dewatering, borrow and bedding material, manholes and catch basins are specified in the appropriate Sections in this Division.
4. Pipe and pipe fittings, valves, gates and hydrants, when applicable, are specified in Divisions 2 and 15.

C. Existing Structures:

1. Perform excavation in such a manner that will prevent any possibility of undermining and disturbing the foundations of any existing structures and any work previously completed under this Contract.
2. Where existing buildings and other structures are in close proximity to the proposed construction, exercise extreme caution and utilize whatever precautionary measure that may be required.

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- D. Repairing Damage: Repair, or have repaired, all damage to existing utilities, structures, lawns, and other public and private property which results from construction operation, at no additional expense to the Owner, to the complete satisfaction of the Engineer, the utility company, property owner, and the Owner.

3.04 BACKFILLING, COMPACTION, CONTROL AND TESTING

- A. Work included: Backfilling work includes backfilling trenches and/or excavation around structures with suitable material removed in the course of excavating and other suitable material.
- B. Related Work Specified Elsewhere (When Applicable):
1. Traffic regulations is specified in Division 1.
 2. Clearing, removal and replacement of paving, when applicable, are specified in the appropriate Sections in this Division.
- C. Quality Assurance:
1. Where backfill is required and/or where shown on the Drawings, compact fill to an in-place density not less than 95 percent of the maximum density of the material in accordance with ASTM D1556 Method "B", unless otherwise indicated on the Drawings or herein.
 2. Determine in-place density in accordance with ASTM D1556 or by other methods as approved by the Engineer.
 3. Have density testing performed by an independent soils laboratory as approved by the Engineer, at no additional cost to the Owner.
 4. Locations of tests (when applicable):
 - a. Average of one test between each manhole for interceptor sewers.
 - b. Average of two tests between each manhole for sewer laterals.
 - c. Average of one test on each side of each manhole in addition to b. above.
- D. Performance:
1. General:
 - a. Provide and place all necessary backfill material.
 - b. Do not allow large masses of backfill material to be dropped into the excavation, as from a grab bucket, in such a manner that may endanger pipes and structures.
 - c. Place material in a manner that will prevent stones and lumps from becoming nested.
 - d. Completely fill all voids between stones with fine material.
 - e. Do not place backfill on or against new concrete until it has attained sufficient strength to support loads without distortion, cracking, and other damage.
 - f. Deposit backfill material evenly on all sides of structures to avoid unequal soil pressures.
 - g. Place screened gravel, crushed rock, crushed stone, gravel borrow or sand in layers of uniform thickness not greater than 6 inches or as shown on the Drawings.
 - h. Thoroughly compact each layer by means of a suitable vibrator or mechanical tamper.
 - i. In excavations below normal depth or where unsuitable materials are excavated, gravel borrow may be used unless groundwater makes such usage impossible. If such is the case, then screened gravel or crushed stone shall be used.
 - j. Do not mechanically or hand compact material that is, in the opinion of the Engineer, too wet. Do not continue backfilling until the previously placed and new materials have dried sufficiently to permit proper compaction.
 - k. When original excavated material is unsuitable use only approved gravel borrow

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for backfilling.

2. Sheeting:
 - a. Leave sheeting in place when damage is likely to result from its withdrawal.
 - b. Completely fill with suitable material and thoroughly compact all voids left by the removal of sheeting.

3. Backfilling in Paved Areas:
 - a. Backfill trenches in streets and other paved areas by moistening and compacting each layer to a density at least equal to that of the adjoining original material.
 - b. Backfill in such a manner as to permit the rolling and compaction of the filled trench with the adjoining material to provide the required bearing value for paving immediately after backfilling is completed.
 - c. Where required, place excavated material that is acceptable to the Engineer for surfacing or pavement subbase, at the top of the backfill to the depths as directed by the Engineer. Bring the surface to the required grade and rake out and remove stones.

4. Backfilling Trenches in Non-paved Areas:
 - a. Grade the ground to a reasonable uniformity.
 - b. Leave the mounding over the trenches in a uniform and neat condition, satisfactory to the Engineer.

5. Bedding & Backfilling Pipelines:
 - a. Install pipe bedding and cushion and primary backfill in accordance with 1 (g) above.
 - b. Deposit and thoroughly compact the remainder of the backfill in 12 inch layers.

6. Placing and Compacting Backfill:
 - a. Water Jetting:
 - (1) Backfill by water jetting shall not be used except when field conditions are, in the opinion of the Engineer, proper.
 - (2) Place the backfill material in layers of not more than 4 feet deep.
 - (3) Thoroughly saturate each layer throughout its entire depth at frequent intervals across and along the trench until all slumping ceases.
 - (4) Furnish jet pipes of sufficient length to reach the specified depth and of a diameter of not less than 1 1/4 inches.
 - (5) Equip the jet pipe with a quick acting valve and supply water through a fire hose from a hydrant or from a pump having adequate pressure and capacity.
 - (6) Take all necessary precautions to prevent the floatation of pipes and structures.
 - (7) The Contractor shall be responsible for all damage resulting from the use of water to perform backfilling work and shall repair all damage at no additional cost to the Owner.

 - b. Puddling:
 - (1) Backfill by puddling shall not be used.

 - c. Tamping:
 - (1) Deposit and spread the backfill material in uniform parallel layers not exceeding 8 inches thick.

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- (2) Tamp each layer as required to obtain a thoroughly compacted mass.
 - (3) If necessary, furnish and use in adequate number of power driven tampers, each weighing at least 20 lbs.
 - d. Rolling:
 - (1) Compact material by rolling only when the width and depth of the excavation are sufficient to accommodate the rollers, dozers, mechanical tampers, or other similar powered equipment, as may prove to be acceptable, and when it can be performed without causing damage to pipes installed in the excavation.
 - (2) Deposit and spread the backfill material in uniform parallel layers not exceeding 8 inches thick.
 - (3) Roll each layer as required to obtain a thoroughly compacted mass.
 - e. Other placing and compacting methods may be employed only when approved by the Engineer.
- 7. Improper Backfill:
 - a. When excavation and trenches have been improperly backfilled, and when settlement occurs, reopen the excavation to the depth required, as directed by the Engineer.
 - b. Refill and compact the excavation or trench with suitable material and restore the surface to the required grade and condition.
 - c. Excavation, backfilling, compacting work and testing performed to correct improper backfilling shall be performed at no additional cost to the Owner.

END OF SECTION

